

Can Institutions of Learning Learn? A Commentary on David W. Orr's *Design on the Edge: The Making of a High-Performance Building*

By Carl N. McDaniel

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Design on the Edge is remarkable. I cannot recommend it too highly. David Orr employs a narrative style and beautiful writing to reflect and explore the field of design, the role of institutions of higher education in being catalysts for change, and the transformation of society in a post-petroleum world. At the heart of the tale is his ground-braking green building, the Lewis Center at Oberlin College. The Lewis Center is now at the heart of the Green campus transformation movement. It also serves a powerful metaphor set against the backdrop of the culture-at-large, struggling to find its way into an unknown future.

JT [John Todd]

Design on the Edge is a cardinal discourse on the culture of higher education in the United States at the beginning of the 21st century. Orr is measured but takes no prisoners as he tells his story of Oberlin College's Adam Joseph Lewis Center for Environmental Studies. He uses this story of ecological design to spotlight the academy's fundamental failure to grasp the significance of human-catalyzed, ecological impoverishment and of education's dereliction of duty by not redressing this civilization-collapsing process. Yes, every campus has contrarian voices, some many, but, by and large, they are marginalized as the mainstream flows ever confident toward modern-humanity's Niagara Falls. The central question: Can institutions of learning learn? An answer is not given, but Orr is inclined to "believe ... the world is rich with possibilities."¹

Orr contends that "the difference between organizations learning and the failure to learn is increasingly important to our prospects in the twenty-first century."² The good news: Oberlin has the Lewis Center—no other campus has anything like it, even six years after formal dedication—and many learning institutions have joined the green campus movement. The bad news: Oberlin's early reluctance to learn from the Lewis Center.

Design on the Edge opens with a brief consideration of the history of design in which the fundamental differences between market-driven current practice and traditional, place-based vernacular design are noted. Orr contends that buildings reflect a culture's mindset and, in turn, teach from that perspective. To the degree that this is true, ecological design facilitates a cultural shift to patterns of living

more compatible with natural principles and places us in proper relations with the rest of the natural world.

Orr is a political scientist by training but early on gravitated to the intersection of living systems and human institutions. He grasps the profound importance of evolution arguing for design to be based upon three point eight billion years of evolution. While Orr champions what science has made possible, "... ecological design builds on the science and technology of the industrial age ..."³, he also argues that the scientific approach of Bacon, Galileo, and Descartes is responsible for humanity's environmental conundrum because it produced "a science based on the assumptions that we stand apart from nature ... and that nature is best understood by reducing it into its components."⁴ Modern ecological design is possible because of the understandings that reductionist science gave. Also, reduction to component parts is a necessary step in addressing the larger challenge to modern science: namely synthesis of the whole, as eloquently articulated by Edward O. Wilson in his book *Consilience*. And separation of humans from nature has deeper roots in philosophy and religion that, no doubt, still influence the perspectives of scientists and everybody else.

One of Wilson's desires in *Consilience* is for all disciplines to come together in order "to get *Homo sapiens* settled down ... before we wreck the planet."⁵ This is Orr's message from the Lewis Center writ big: "Ecological design is not a formula but rather a complex process of adapting human intentions to ecological realities."⁶ But, first Orr had to transplant to Oberlin what he had learned at Meadowcreek, the environmental education center he and his brother Wilson had co-founded in the Arkansas Ozarks.

David Orr's tale of his first visit to Meadowcreek Valley in February 1979—biting wind, nearly impassable muddy roads, hiking and exploring until dark, then finding one of the few people in the valley to pull them out of the mud only to lose a tire a bit further down the road—gives a glimpse of his steadfast character and why Oberlin now has the Lewis Center. Of the nine places where Orr has lived, Meadowcreek is the only one that he dreams about: "I lived in the Meadowcreek Valley for eleven years, and in some ways I still do and probably always will. As places go, it had a lot going against it."⁷ It was, however, where Orr's abstract understanding of place "gave way to something deeper"⁸ and where the essence of ecological design seeped into his being.

Our built environment is for the most part a patchwork quilt of jury rigged compromises to an ever changing array of technology generated problems that by necessity were resolved within particular social settings. The Lewis Center's creation was not an exception. It is Orr's telling this autobiographical story that makes *Design on the Edge* insightful and profoundly relevant to those interested in making a more durable world. Once charged by the Environmental Studies Program Committee to envision permanent space for the program, Orr brought the nation's leading visionaries to campus—architect William McDonough, energy specialist Amory Lovins, ecological designer John Todd, and landscape architect John Lyle, to name a few. Orr made it a community oriented design process via

some thirteen design chartees, several years of seminar type classes, and untold meetings and conversations.

The aspirations were high. Create “a building and landscape that would cause no ugliness, human or ecological, somewhere else or at some later time.”⁹ The building and landscape would teach by their very presence. They would actively be parts of the curriculum, not just places where classes meet. And the project would be used “to develop and apply new analytic tools such as least-cost, end-use analysis, full-cost analysis, full-cost accounting, and systems analysis, by which we might better appraise building performance and its full costs.”¹⁰ They also intended the building to constantly change to meet design goals and new situations and to employ new technologies. They blue-skied with no boundaries to fit the building into Oberlin academic life. Absurd and brilliant ideas emerged, many RIP but others survived as a tribute to the boldness of the design process.

In real estate three things are important: location, location, location. For reasons apparently no more significant than availability, the Lewis Center was placed in the south campus residential area removed from other academic buildings and other centers of campus life. This physically isolated the Environmental Studies program from other disciplines and placed Oberlin’s ecologically designed building and landscape on the periphery of campus life.

Orr came to Oberlin in 1990. When, in 1994, Nancy Dye became Oberlin’s thirteenth president in 1994, she proved sympathetic to his ideas for a leading edge environmental building and in June 1995 Oberlin’s trustees authorized an environmental studies building. The conditions were unusual. The idea had come from the Environmental Studies Program and was fleshed out in a class—not a standard planning process. Orr was given two years to raise the money for the building from sources that had not previously given to Oberlin.

Orr “charged without fully weighing the odds of the enterprise, which the more rational could see were low.”¹¹ The original estimate of two point five million dollars was woefully inadequate. Orr had raised several hundred thousand dollars each year at Meadowcreek, but this was millions. Since he could not seek funds from foundations, he courted people of wealth. With more than nine months left to raise funds, he learned in mid-September 1996 that the project would be canceled for lack of funding at the October trustee meeting.

With a sustained rush of adrenalin he arranged half-dozen meetings with his best prospects. After he met for dinner with Adam Lewis and his father, Peter, the three million dollar naming gift was secured. Within a week a second major gift materialized and the trustees did not terminate the project in October. On that first night in Meadowcreek Valley, Orr and his brother were befriended by a kindly soul with a tractor and were able to change the tireless wheel to be on their way. This time help came from visionaries of design and people with means allured by possibilities.

The thirteen thousand seven hundred square foot Lewis Center houses four classrooms, seven offices, restrooms, conference room, kitchen, hundred-seat auditorium, an Eco-Machine, and a spectacular atrium with glass curtain walls on the east and south—now the favored entertainment space on campus. Design for

daylighting eliminated the need for artificial lighting most days. Motion sensors turn on lights when needed. The building and landscape are monitored every five minutes by a hundred and fifty sensors. The data they gather are displayed in the atrium.

A sun plaza on the southern side of the building records solstices and equinoxes. In front of the Eco-Machine a pond, native plants and trees fill the southeastern and eastern landscapes. On the north side a fruit orchard covers a mound of soil that rises to just below the second floor offices. Further to the north the students have a vegetable garden. High performance design and modifications over the first years of operation have made it possible for the building to provide most, if not all, energy used.

Did the Lewis Center meet all goals and expectations? No, but the reasons are numerous and instructive. Adjustments are constantly being made and by any measure the accomplishments are remarkable. In March 2004 Oberlin trustees adopted, in principle, a comprehensive environmental policy that is slowly translating words into deeds.

Can learning institutions learn? Perhaps; however, the greatest obstacle is our dominant worldview. As long as society sends students to college whose primary value is to “be very well-off financially” (steady at about seventy-five percent of college students since the mid-1980s), visionary administrators, faculty, staff, and trustees will have a very daunting challenge, even if they do learn and practice ecological design in its broadest sense. In the 1960s fewer than forty percent claimed this as a primary value while over eighty-five percent had a primary value to “develop a meaningful philosophy of life.” This value is now at an all time low of about thirty-five percent. Orr, however, is an optimist and sees one out of every three students ready “to become the pioneers of a new age in which humanity has sobered down to live and prosper within the means of sunlight, soils, and ecology.”¹²

¹ pp 217

² pp xiii

³ pp 28

⁴ pp 28-29

⁵ pp 297

⁶ pp 35

⁷ pp 189

⁸ pp 200

⁹ pp 72

¹⁰ Ibid

¹¹ pp 68

¹² pp 186

References:

David W. Orr, 2006, *Design on the Edge: The Making of a High-Performance Building*. MIT Press, Cambridge, MA.

Edward O. Wilson, 1998, *Consilience: The Unity of Knowledge*. Knopf, New York.